

Collision avoidance technology for mine haul trucks

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Mine haul truck. Credit: CSIRO

Today's mine haul trucks are massive vehicles in which drivers have limited vision and cannot see anything within around 30 meters. If a smaller vehicle on the mine site gets in the way of one of these monsters, the consequences can be dire.

CSIRO Exploration & Mining's Dr Patrick Glynn is leading a research project to help solve this problem by developing a 360 degree proximity detection system.

"We took a standard Doppler radar system and adapted it with integrated signal processing," Dr Glynn says.

“The technology will alert the driver if a hidden object is moving relative to the mine haul truck, what direction it is moving, what its rate of change is, and whether a collision will occur. In all cases the system reports to the driver in one tenth of a second, far shorter than the average reaction time for a driver of about one second.”

The Australian Coal Association Research Program (ACARP), which is funding this research, awarded Dr Glynn a 2007 ACARP Award for Research Excellence.

In his citation for Dr Glynn, ACARP Executive Director Mark Bennetts said, “Given the competence of the science providers engaged in the 175 current ACARP research projects, it is a real accomplishment to win this award and a strong vote of confidence in your team.”

While the research is still in its development stage, a prototype has been tested at Goonyella riverside, one of the largest open cut coal mines in Australia, located in Queensland’s Bowen basin south west of Mackay.

Current plans are to tie in the system with an existing reversing camera and monitor. Additional video cameras will automatically display a detected vehicle on the monitor, along with its speed and position.

“The real challenge is to provide information in a natural way so that the driver does not have to take their eyes off the road. Drivers already have a lot on their hands and should not be overloaded with information,” Dr Glynn says.

“In a recent accident in South Africa, a light vehicle came between two haul trucks. Dust hid the light vehicle from the second truck which ran straight over it.

“I want to avoid a repeat of any incident such as this. If they had

effective collision avoidance technology on board, they could have taken evasive action.”

Source: CSIRO Australia

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